

Monthly Activity Report

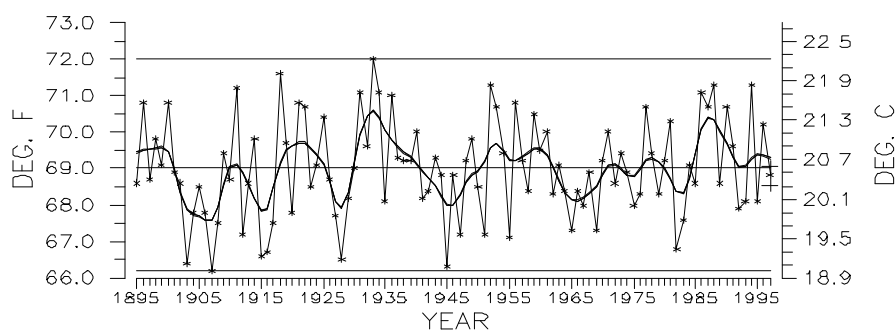
June 1997

National Climatic Data Center

A National Resource for
Climate Information



U.S. NATIONAL TEMPERATURE
JUNE, 1895-1997



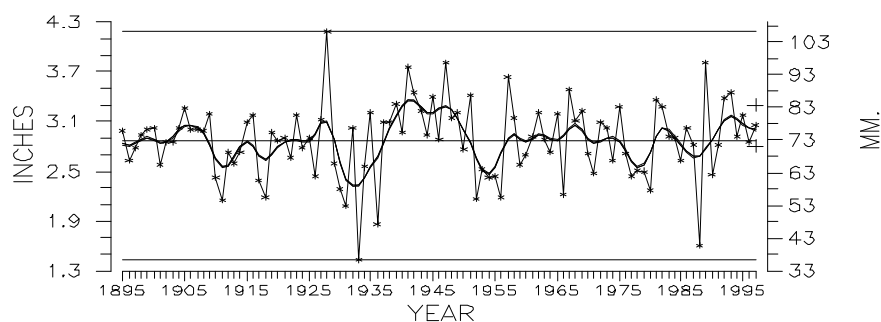
National Climatic Data Center, NOAA

STRAIGHT HORIZONTAL LINES ARE
MAXIMUM VALUE (TOP),
LONG-TERM AVERAGE (MIDDLE),
MINIMUM VALUE (BOTTOM)

THICK SMOOTH CURVE
IS 9-POINT BINOMIAL
FILTER.

CONFIDENCE INTERVAL
FOR CURRENT YEAR IS
INDICATED BY '+'.
+.

U.S. NATIONAL PRECIPITATION
JUNE, 1895-1997



National Climatic Data Center, NOAA

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Preliminary data for June 1997 indicate that temperature averaged across the contiguous United States was near the long-term mean ranking as the 48th coolest June since 1895 (Top Figure). Fifteen percent of the country was much cooler than normal while three percent of the country was much warmer than normal.

June 1997 was the 35th wettest such month since 1895. Over 12 percent of the country experienced much wetter than normal conditions while about 4 percent of the country was much drier than normal (Bottom Figure).

DIRECTOR'S HIGHLIGHTS

The National Research Council (NRC) Commission on Engineering and Technical Systems National Weather Service (NWS) Modernization Committee Panel on Climate Record

Modernization of the Cooperative Observer Network panel held their second meeting on June 16-17, 1997, at the National Climatic Data Center (NCDC). The purpose of the meeting was to discuss the NWS Cooperative Program from the NCDC point-of-view. Center personnel provided 12 briefings on a wide range of related issues including: the quality of the data recorded on paper forms; the cost in terms of processing time, staffing resources, and dollars associated with receiving the data in paper form; the Center's customer base for the Cooperative data; and the predominant needs and wants of the customers. In most cases, customers desire the data in near real-time. The theme conveyed by the Center was the desire to access the observational data in digital format, preferably on a daily basis. Alan Rezek, MIC Charleston, WV, and David Keller, DAPM, from Blacksburg, VA, presented a good overview of the NWS modernization program on field support for the Cooperative program. The panel will convene a meeting later this summer with various offices of the NWS in Washington, DC.

DOC Partners in Quality Contracting Award

The National Climatic Data Center's (NCDC) services contractor, the Orkand Corporation, has been awarded top honors, for an unprecedented third time in a row, in the DOC Partners in Quality Contracting nationwide competition. Officials from DOC, the Eastern Administrative Support

Center Procurement Office, and NCDC attended the formal awards ceremony in Washington, DC, Thursday, June 19, 1997. Orkand was the winner for the Large Business--Service Category. This award is indicative of the conscientious efforts that this contractor continuously puts forth to meet the requirements of the Center and the type of productive government-business relationship that can be achieved through mutual cooperation.

State Climatologist Exchange Program

Timothy Anderson, Assistant State Climatologist, State of Georgia, completed a visit to the National Climatic Data Center (NCDC) under the State Climatologist Exchange Program. Mr. Anderson's main accomplishment was organizing inventories of all climate data available for the State of Georgia from metadata files. This was completed by working with personnel from NCDC's Data Base Management Branch. Research was also completed on some of Georgia's pre-1900 daily/monthly weather records. The work will be shared with the new Georgia State Climatologist and the National Weather Service offices in Peachtree City and Athens, GA. The inventories will be placed on-line by means of the Georgia State Climatology Office home page.

HPD Rehabilitation Completed

NCDC has completed a reprocessing of the Hourly Precipitation Data (HPD) data set that corrected systematic errors previously identified. The HPD archive contains more than 6,000 historical weather sites in the United States observing precipitation on an hourly basis. The rehabilitated

data covers the 1900 through 1995 period and contains more than 53 million observations. In addition to this effort, monthly quality assurance processing has been implemented on the data before it is placed into the archive.

Web CLISERV Now On-Line

A World Wide Web version of the Climate Services System (CLISERV) is now on-line for internal users as a beta test version (<http://www4.ncdc.noaa.gov/cliserv/dimain.html>). CLISERV allows on-line queries to all NCDC

metadata from a single access system. The current web version allows access to station history, data set documentation, and the 3200 series inventories. Also available in the web version is the ability to download unedited Local Climatological Data (LCD) files as current as the previous month. Additional modules available in the DOS version of CLISERV such as non-digital and digital media catalogs and other inventories will be brought into the web version as resources permit.

CLIMATE DATA AND INFORMATION SERVICES

◆ Data and Information Distribution

Next Generation Weather Radar (NEXRAD) Level III Data Archive

The NCDC has completed preliminary programs to select Level III data from optical disk and store the data on the Hierarchical Data Storage System (HDSS). All FMH required products are selected from the disks, compressed with standard UNIX compression, and tarred into individual daily files by product type. There are approximately .5 terabytes of compressed data per station month. Level III products for the first four months of 1997 for Lake Charles, LA, has been loaded to the HDSS. Selection of data from one disk, approximately 15 days, requires 5 to 6 hours of processing time.

Upper Air CD-ROM

The National Climatic Data Center has produced an update for the CD-ROM entitled Radiosonde Data of North America. The latest disc, produced as a joint effort with ERL, includes data for 1996. The four CD-ROM collection contains all available radiosonde data covering the United States, Canada, Mexico, and the Caribbean Region beginning in 1946.

Coastal Climates Characterized

New climatological data and narrative descriptions for two of eight volumes of the United States Coast Pilot have been sent to the National Ocean Service. Coast Pilots are a series of nautical books that contain a wide variety of information important to navigators of U.S.

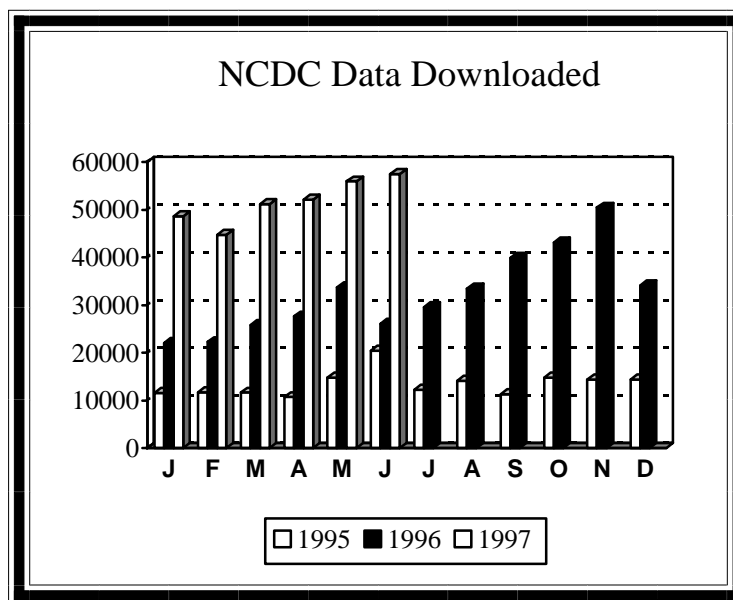
coastal and intracoastal waterways. In addition to climate data, the Coast Pilots include channel descriptions, anchorages, currents, dangers, and other information critical to the maritime community. Title 33 of the Code of Federal regulations, requires a current copy of the Coast Pilot to be aboard all vessels over 1600 tons traversing U.S. waters. NCDC will complete the final 6 volumes over the next 15 months.

Daily U.S. Climate Data

The National Climatic Data Center has issued an update to the Cooperative Summary of Day CD-ROM set for the years 1994 and 1995. The original 21 CD set contained data for the mid 1800s to 1993 with a single update for 1994. For this product, data for 1994 and 1995 were consolidated on one CD together with extraction software. The Cooperative CDs contain all available digital data (maximum/minimum temperature, rainfall, snowfall, weather) observed and recorded daily at thousands of cooperative sites across the United States. The CD also includes station history information and a station element inventory. A further update containing data for the years 1994 through 1996 will be issued in late summer.

Billion Dollar Disaster Report Updated

The NCDC updated its report on billion dollar weather disasters of 1980-1997. The report now includes 30 events during the past 18 years. Seven of those occurred during 1996-1997, resulting in 347 deaths and nearly \$20 billion in overall damages and costs. The on-line version of the report (via NCDC's www site) includes links to more detailed reports on many of these events. A number of www sites, such as USA Today, have established links to this report.



Increasing interest in extreme events has made this a high visibility item.

Texas Tornadoes Report Placed On-line

NCDC placed a report on-line within a week after the F5 tornado struck Jarrell, TX. The report includes a short narrative, satellite images showing the severe thunderstorms in the area, and satellite Motion Picture Experts Group (MPEGs) showing the evolution of the storms. Twenty-nine deaths resulted from the tornado outbreak, with 27 being in Jarrell. A link to the report is included on NCDC's "Weather Events of 1993-1997" WWW page.

♦ Research Customer Service Group Requests

Surface/Upper Air Charts CD-ROM Used in NOAA Research

The National Climatic Data Center (NCDC's) National Oceanic and Atmospheric Administration (NOAA) Weather Charts CD-

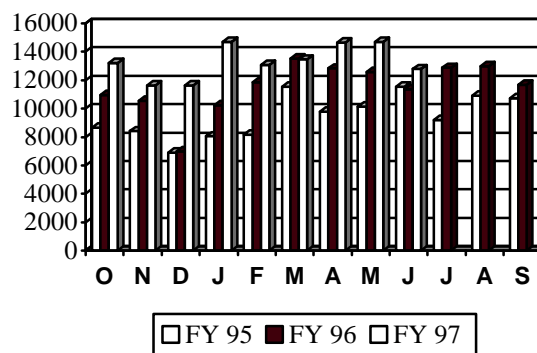
ROM Chart Series A: Surface and Upper Air Weather Charts for June 1996 was sent to a researcher at NOAA's Environmental Research Laboratory (ERL). The researcher in the Atmospheric Lidar Group participated in the Multi-Center Airborne Coherent Atmospheric Wind Sensor (MACAWS) field experiment. Aircraft collected data during certain times of the MACAWS experiment. The researcher needs CD-ROM data from various surface charts and upper air charts at 700, 500, and 300 MB to correlate with the aircraft-derived data, that was collected from the Aleutian Islands, Alaska southeastward to the California coast.

♦ Satellite Data Requests

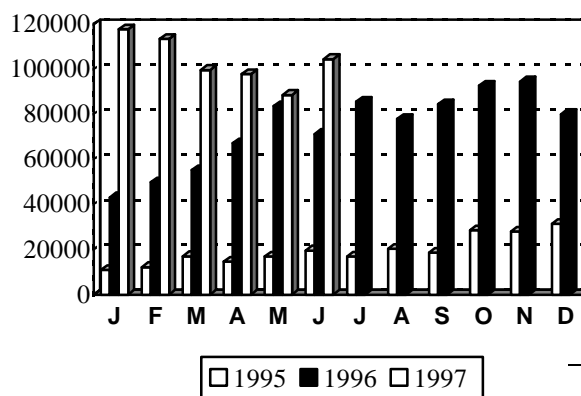
NASA Testing Instruments

METOP-1, built by the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) will fly the National Oceanic and Atmospheric Administration (NOAA's) Advanced Very High Resolution Radiometer (AVHRR) instrument and provide the new Low Resolution Picture Taking (LRPT) service in digital format to APT (Automatic Picture Transmission) users. The NOAA/SAO Polar Spacecraft Engineering Office at the National Aeronautics and Space Administration (NASA) Goddard Space Flight Center contacted the National Climatic Data Center (NCDC) to

NCDC Off-Line Customer Contacts



NCDC On-Line Users



acquire several AVHRR LAC data sets to test several compression techniques so that users can get more channels and higher spatial resolution data. Factors that must be considered are loss of

data from compression and cost impact on the conversion from current APT station to the future digital LRPT station that will be based on a Pentium PC.

◆ Congressional Requests

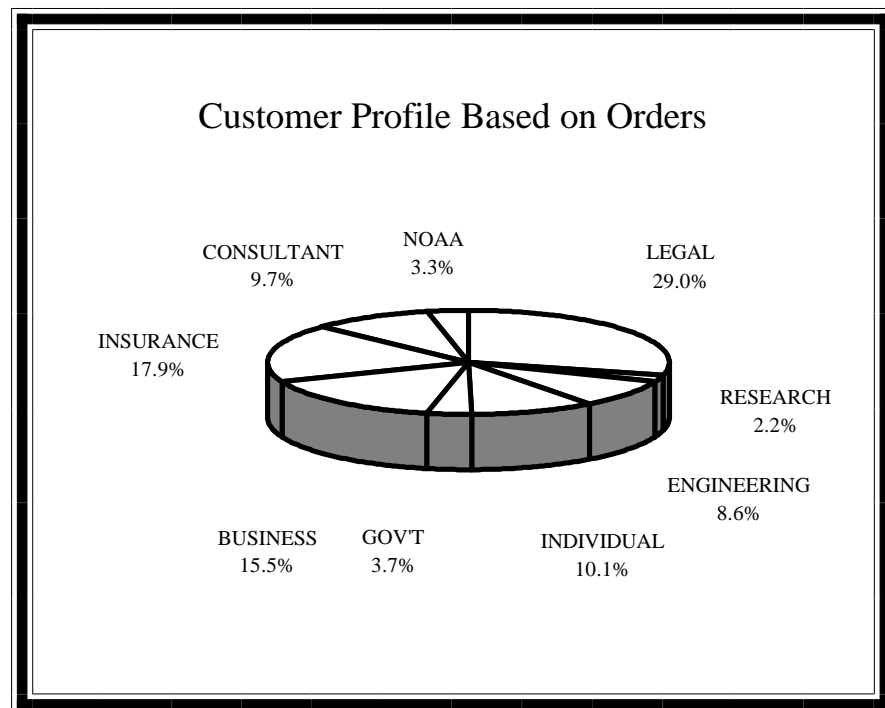
Senator Lott Receives Hurricane Image

The office of Senate Majority Leader Trent Lott (MS) contacted the National Climatic Data Center to acquire a GOES satellite image of Hurricane Elena churning across the Gulf of Mexico in September 1985. The storm menaced the entire Gulf Coast from Florida to Louisiana for five days before finally striking Mississippi on September 2. The image will be framed and displayed in Senator Lott's office.

◆ Requests from News Media

New York Times to publish GOES Satellite Image

A staff editor of the "New York Times," Science Division, contacted the National Climatic Data Center Satellite Services Group for an image showing four fully formed Atlantic tropical cyclones occurring on August 30, 1995. The image will be published on the front cover of the



"Science News" magazine, a weekly publication covering a wide range of topics. The feature story will be on hurricane preparedness as we begin the 1997 hurricane season.

ABC World News Tonight

ABC News contacted the National Climatic Data Center (NCDC) to obtain meteorological data pertaining to historical tornado outbreaks nationwide. This data was used in a network report about the recent tornado outbreak in Jarrell, TX. There were 27 fatalities associated with this F-5 tornado that carved out a 5-mile-long, half-mile-wide swath of destruction. The NCDC provided information from the publication Storm Data for April 1979 and May 1987 as well as data collected from the Natural Disaster Survey Report

“The Widespread Tornado Outbreak” of April 3-4, 1974, which spawned 127 tornadoes. In addition, NCDC selected pages from several reports authored by the Storm Prediction Center including 1997 Deadly Tornado Statistics, Monthly Tornado Statistics, and the 25 Deadliest U.S. Tornadoes along with a copy of the Fujita tornado scale.

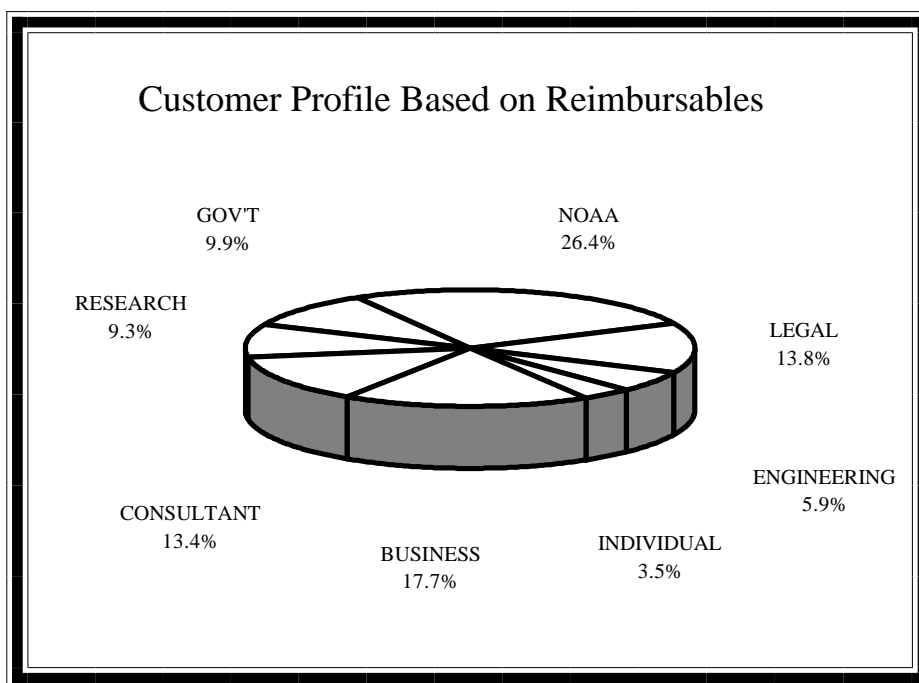
♦ Interesting Requests

Ranching Assistance

A rancher in Shepherd, MT, contacted the National Climatic Data Center (NCDC) for help in a dispute with a large mining concern. The large sprawling ranch, located just north of Billings, has been in the gentleman's family for decades and, because of its abundance of fresh spring water, has supported large numbers of livestock. Since the mining consortium took up residence just north of the ranch ten years ago, the water supply has gradually diminished. It is the mining company's contention that the reduced water supply is a result of an extended drought. The rancher insists the underground excavations have altered the spring sources. The NCDC provided 30 year normals as well as 40 years of meteorological data for Billings, MT.

NCDC Assists John Hopkins University

A research team with John Hopkins University contacted the National Climatic Data Center (NCDC) to obtain daily precipitation data. This



data will be used in a study involving *Fungus Aspergillus*, an airborne infectious disease that affects the lungs, sinuses, and skin. The researchers believe that there is a correlation between rainfall and the onset of the fungus. Preliminary findings indicate a higher incidence of infections after prolonged periods of dampness. The publication Climatological Data for the state of Maryland was provided for the period January 1995 through December 1996.

FAA Investigation

The Federal Aviation Agency (FAA) is investigating improper flight procedures used by a large commuter airline. This carrier's planes have been documented taking off fully loaded when temperatures were too high for them to sustain proper climb angles. The high temperatures create less dense air which causes the aircraft to climb at a shallower angle than deemed safe by the FAA. Warnings have been issued to the airline to carry fewer passengers, thus less weight, when operating

at certain desert or high altitude terminals. The National Climatic Data Center provided several years of hourly temperature records for various airports throughout the U.S.

♦ Technology Applications

Monthly Global Vegetation Index Time Series CD-ROM

NCDC has started development of a CD-ROM with 12 years of Normalized Difference

Vegetation Index (NDVI) data. This CD-ROM will closely follow the structure of the Technical Documentation CD-ROM with the inclusion of an offline browser and hypertext linkages. Not only will the CD-ROM include digital NDVI data but will also have the corresponding imagery files. It is expected that this project will be completed in July 1997.

SCIENTIFIC AND PROFESSIONAL ACTIVITIES

♦ Working Groups/Committees/Meetings

NOAAServer Development Team Meeting

Twenty-eight data providers attended an open NOAAServer meeting this past month at NODC. Dan Manns and Claude Williams attended from NCDC. The purpose of the open meeting was to present and discuss the ongoing system design and implementation efforts of the Java based NOAAServer Version 2. Design discussions included data fusion/co-plotting, investigation into a new search mechanism (ISITE), map server development by NCDC, a shopping cart paradigm implementation for data ordering and user interface development using Java. A key issue was the NOAA National Data Centers current development of an on-line ordering system. It is critical that NOAAServer and the ordering system team communicate and cooperate. Dan Manns at NCDC and Bruce Welker at NGDC will represent NOAAServer in this cooperative effort.

International Meeting on Climate Extremes hosted by NCDC

The National Climatic Data Center hosted a GCOS/CLIVAR meeting June 3-6, 1997. Over 100 scientists from 34 countries and a dozen insurance representatives attended. The meeting focused on needs of the insurance industry and scientific problems related to developing and interpreting data for detecting secular trends of extreme climate and weather events. The NOAA Deputy Under Secretary, Diana Josephson, provided opening remarks to start the meeting. The meeting was held at the Radisson Hotel in downtown Asheville, NC. A special issue of *Climatic Change* will summarize the work presented, and at the next GCOS meeting endorsement of the international teams will be established to calculate various indices that will be discussed as a joint CLIVAR/IPCC activity.

Satellite Products and Services Review Board Meeting

The National Environmental Satellite, Data, and Information Services (NESDIS) Services

Oversight Panel (SOP) met on June 17, 1997, in room 206 of the National Oceanic and Atmospheric Administration (NOAA) Science Center. NCDC's Kay Metcalf presented an overview of the new pricing policies being implemented at the NESDIS Data Centers, including the possibility of charging for on-line data. The NESDIS personnel in attendance expressed concern about NOAA charging for data (especially satellite data) when many other government agencies and universities provide NOAA data on-line at no charge. Since other NOAA and NESDIS offices have large amounts of data on-line this could potentially impact all of NOAA, not just the data centers.

The Earth Observing System Data and Information System (EOSDIS) User Services Working Group (USWG)

The Earth Observing System Data and Information System (EOSDIS) User Services Working Group (USWG) met at the National Climatic Data Center (NCDC) on June 3-5, 1997. Representatives from NCDC, the National Geophysical Data Center (NGDC), the National Oceanographic Data Center (NODC), and the Satellite Active Archive (SAA) were present to host the event. The discussions centered on issues for the NASA Distributed Active Archive Centers (DAACs) that are similar to those that the NOAA data centers face: pricing policies, marketing, data attribution, etc. One of the bigger issues is the system development by the EOSDIS Core System (ECS) contractor, and the fact that the system is not considered user friendly by the User Services Offices (USO) representatives, primarily because much of the input from the USOs was not taken into consideration by the development staff. To date, NASA is very disappointed in the number of user

accesses to the Information Management System (IMS, the user entry point to the EOSDIS system). The USOs are also concerned that the user services tools are not being developed in a cohesive system but are being developed piecemeal, requiring them to access several systems in the course of a day to get their jobs done.

Workshop on Climate Variability in the Southeastern United States

NCDC participated in a Workshop on Climate Variability and Water Resources Management in the Southeastern United States, June 22-25, 1997, in Nashville, TN. Vice President Al Gore spoke to the 113 participants at a dinner meeting the evening of June 25. Presidential Science Advisor Jack Gibbons and Senior Presidential Environmental Advisor Jerry Melillo attended the workshop. Future temperature change and variability were major concerns because of the underlying influence on observed temperatures of urban landscapes (greater minimum and mean temperatures, and smaller diurnal temperature range) compared to rural landscapes.

GPCP Working Group on Data Management

The recent meeting of the Global Precipitation Climatology Project (GPCP) Working Group on Data Management (WGDM) produced two major actions items for NCDC. The first concerns the project's overall validation strategy. The main objective of the GPCP's initial validation plan was to provide information that would contribute to choosing the best satellite precipitation algorithm. The emphasis has recently evolved to providing estimates of the accuracy of the GPCP precipitation products. Representatives from the

University of Oklahoma, the University of Iowa, the University of Bristol, and the National Climatic Data Center were tasked with drafting a new validation plan that reflects this new emphasis. The second action concerns the use and distribution of the GPCP precipitation products. The NCDC was tasked with producing a proposal to place GPCP products, plus display software, on a CD-ROM. In addition, the NCDC was requested to collect information on the use of NCDC's new system to enable interactive comparison of a user's data set with GPCP products over the internet.

♦ Visitors

National Consortium for Specialized Secondary Schools of Mathematics, Science, and Technology

The Fourth Annual Research Symposium of the National Consortium for Specialized Secondary Schools of Mathematics, Science, and Technology was hosted at the University of North Carolina at Asheville on June 5-8, 1997. Sixty-three students and 27 teacher/chaperones from 22 schools across the country participated. Twelve students and three teachers visited the National Climatic Data Center as part of a science field trip. The visitors were given briefings and demonstrations on the Global Climate Laboratory, Operations and Support Division, and Climate Services Division activities. In addition, they received a tour of the Center's computer room, a demonstration of on-line activities, and a tour of the Climate and Weather Museum.

NEXRAD Data Aids Precipitation Study

Dr. John C. Purvis, former State Climatologist of South Carolina, spent a week at NCDC analyzing NEXRAD reflectivity and precipitation images to aid in a precipitation study. Dr. Purvis' hypothesis that the creation of Lake Marion after

the construction of dams on the Congaree River has influenced rainfall patterns in the area. Preliminary analysis of the radar images suggest that summer convective activity is retarded as the cells pass over the lake and precipitation amounts on the opposite side of the lake are reduced.

ASOS Winds Studied

Tom Lockhart, a National Weather Service (NWS) consultant who is working on the NWS Automated Surface Observing System (ASOS) Climate Data Continuity Project, visited the National Climatic Data Center (NCDC). Mr. Lockhart provided information about his findings involving ASOS precipitation data, comparisons of wind speeds derived from ASOS versus non-ASOS equipment, and information about various wind tunnel laboratories.

♦ Publications

1996 Atlantic Tropical Storms Technical Report Available

The National Climatic Data Center (NCDC) has released a technical report entitled, "1996 Atlantic Tropical Storms, Views from the NOAA Satellites." The second annual report provides a synopsis of each named tropical storm using textual information based on the Tropical Prediction Center's Preliminary Hurricane Reports and remotely-sensed and in-situ data received at NCDC. The graphical products include NEXRAD Level III Base Velocity, Base Reflectivity and Storm Total Precipitation; GOES Water Vapor Movement Winds; total precipitation maps based on an extensive collection of cooperative and National Weather Service stations; and selected Geostationary Operating Environmental Satellite (GOES) and Polar-orbiting Operational Environmental Satellite (POES) imagery.

♦ Interactions with NOAA Line Offices

DOC - USDA Cooperation

NCDC's Anne Viront-Lazar, a Computer Systems Specialist and manager of the Station History Project, will be detailed to the USDA National Water and Climate Center for one year beginning in August. Her duties and goals for the year include the acquisition of telemetered snow data and other remotely accessed weather data sets for the NCDC National Archive; and assistance in the design of Internet accessible metadata support systems for SNOTEL, soil moisture, snow courses, and other climatic data networks. Work in this area is considered integral for the success of the USDA Climate Access Network and other interagency cooperative data sharing projects.

NCDC Provides Support for NOAA Staff Meeting and Tornado Studies

Mr. Ron Gird, National Weather Service (NWS's) Chief Technical Science Officer, requested Geostationary Operating Environmental Satellite (GOES) images, both infrared and visible, of the storms that produced deadly tornadoes in eastern Texas on May 27, 1997. All data, including NEXRAD radar imagery, NWS forecasts and warnings, satellite images, and post media information were used to brief Dr. Joe Friday for a National Oceanic and Atmospheric Administration (NOAA) staff meeting with Dr. James Baker. In addition, the National Climatic Data Center (NCDC) supplied NEXRAD Level II data for two different studies, one at the NOAA/Forecast Systems Lab and one at the National Weather Service Forecast Office (NWSFO) Austin/San Antonio, for a post-analysis of the F5 tornado. The post-analysis of these data by these NOAA offices will help in predicting and understanding severe tornado outbreaks.

Major West Coast Winter Storms Studied

Paul Neiman of NOAA's Environmental Technology Lab (ETL) in Boulder, CO, requested ship and buoy observations from the National Climatic Data Center's TD-1129, TD-1171, and TD-1168 data sets covering the eastern half of the North Pacific Ocean from December 30, 1996, through January 3, 1997. A series of major winter storms was in progress at this time. NCDC's Research Customer Service Group supplied Mr. Neiman with the data that will be used to study land-falling cyclones with heavy precipitation along the West Coast of the U.S. The preliminary results from his study will help guide ETL in carrying out a major field experiment during the winter of 1997-1998 off the California/Oregon coast.

Buoy CD-ROM Used by NOAA's Pacific Fishery Management Council

A researcher with National Oceanic and Atmospheric Administration (NOAA's) Pacific Fishery Management Council obtained the Coastal-Marine Automated Network (C-MAN) and Buoy Reports and Summarized Elements CD-ROM from the National Climatic Data Center (NCDC's) Research Customer Service Group (RCSG). The council, one of eight regional fishery management councils, works in partnership with the federal government to manage the nation's fishery resources. The councils, which prepare fishery management plans for marine fish stocks in their respective geographical areas of responsibility, submit management plans for review by NOAA's National Marine Fisheries Service and approval by the Secretary of Commerce. The researcher will evaluate the probability of hazardous weather/sea conditions for the opening of the primary West coast sablefish fishery later this year.

NCDC Data Volumes

